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Xylohyphopsis aquatica sp. nov., a new aquatic hyphomycete from China

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Abstract—A new aquatic hyphomycete, *Xylohyphopsis aquatica*, is described and illustrated from specimens collected on submerged wood in Jiangxi Province, China. *Xylohyphopsis aquatica* is morphologically characterized by its 0–1-septate, thin-walled, smooth, pale brown conidia in simple or branched chains, usually with a germ tube or short germination hypha at the distal end. A key to *Xylohyphopsis* species is provided.

Key words—freshwater fungi, lignicolous fungi, *Pezizomycotina*, taxonomy

Introduction

Freshwater habitats accommodate various fungal species. Numerous unique fungal taxa have been recently reported from such habitats, including a new phylum (Jones et al. 2011), some new orders (Pang et al. 2002, Raja et al. 2015), and numerous new genera and species (Hu et al. 2007, 2010, 2012a; Monteiro et al. 2014). During our investigation on lignicolous fungi from freshwater habitats in China (Hu et al. 2012b, 2013), several novel taxa have been discovered. Among them is a hyphomycetous fungus with morphological characters of *Xylohyphopsis* W.A. Baker & Partr. (Partridge et al. 2000) but differing from other described *Xylohyphopsis* species in its unique morphological characters and habitat. It is proposed here as new.

Materials & methods

Unidentified wood samples submerged in freshwater were collected in China and incubated in moist chambers at room temperature (c. 25 °C). Samples were examined for fungal fruiting bodies using a dissecting microscope. Observations and photographs were prepared from materials mounted in water and examined with a Nikon Ni compound microscope. Voucher specimens are deposited in the Herbarium of Fungi, Jiangxi Agricultural University, Nanchang, China (HFJAU).

Taxonomy

Xylohyphopsis aquatica J.E. Huang, H.Y. Song, Jian Ma & D.M. Hu, **sp. nov.** FIG. 1

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Differs from *Xylohyphopsis curta* by its smaller unicellular conidia and from *X. lignicola* by its readily broken conidial chains and its much smaller, thin-walled, smooth, pale brown conidia.

TYPE: China, Jiangxi Province, Nanchang, Meiling Mountain, in a stream on submerged wood, 13 Oct. 2015, J.-E. Huang (**Holotype**, HFJAU 0011).

ETYMOLOGY: *aquatica*, referring to the aquatic habitat of the fungus.

Colonies on wood substrate effuse, spreading widely, powdery with abundant conidial formation, dark brown. Mycelium mostly immersed, composed of branched, septate, smooth, pale brown hyphae, 1–2 µm in diam. Conidiophores reduced to conidiogenous cells, micronematous, essentially unmodified emergent hyphae that merge gradually and subtly into conidial chains, single or in loose caespitose clusters, subhyaline or pale to medium brown, erect, straight, cylindrical. Conidial chains often arising as lateral outgrowths of repent hyphae in close proximity to one another and frequently from adjacent hyphal cells, 20–90 µm long, and usually with a germ tube or short germination hypha at the distal end. Conidia dry, in simple or branched acropetal chains, acropleurogenous, pale brown, ellipsoidal to broadly fusiform, 0–1-septate, slightly truncate or acute at both ends, thin-walled, smooth, 1-celled conidia 2–5 × 1–3 µm, 2-celled conidia 3–7.5 × 1–3 µm. Conidia secession schizolytic.

ADDITIONAL SPECIMENS EXAMINED: CHINA, JIANGXI PROVINCE, Nanchang, Meiling Mountain, in a stream on submerged wood, 13 Oct. 2015, J.-E. Huang (HFJAU 0012).

Discussion

Partridge et al. (2000) established *Xylohyphopsis* for two species recombined from *Xylohypha* (Fr.) E.W. Mason: *Xylohyphopsis curta* (Corda) W.A. Baker & Partr. as the type species and *X. lignicola* (B. Sutton) W.A. Baker & Partr. Partridge et al. (2000) noted the following differences between *Xylohyphopsis* and *Xylohypha*: 1) the conidial chains of *Xylohypha* are consistently moniliform, while in *Xylohyphopsis* the conidia are separated by broad transverse septa; 2) in *Xylohypha*, the conidia are consistently unicellular, while there are some multicellular conidia in *Xylohyphopsis*; 3) conidia disarticulate in a yeast-like manner in *Xylohypha*, while the conidia cleave schizolytically at the distinct wide septa.

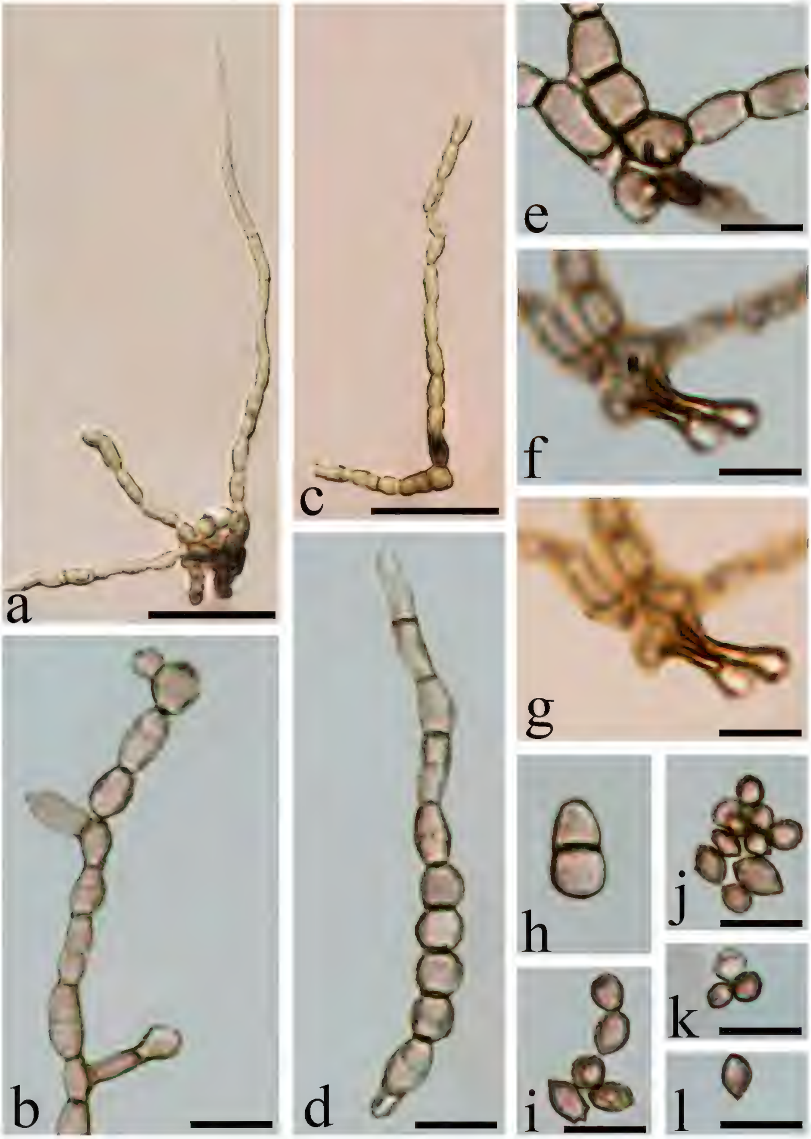

Fig. 1. *Xylohyphopsis aquatica* (holotype, HFJAU 0011). a. Conidiophore with conidial chains. b–d. Conidial chains. e–g. Conidiogenous cells. h–l. Conidia. Scale bars: a, c = 20 µm; b, d–l = 5 µm.

Xylohyphopsis curta differs from *X. aquatica* by its production of conidia with 0–4 (or more) septa and by its much larger unicellular conidia (6.5–8 × 5–6.5 µm; Partridge et al. 2000); and *X. lignicola* differs by its conidial chains that do not readily break up and by its much larger, dark brown, thick walled, verrucose conidia (5–6.5 µm diam.; Sutton 1973, as *Xylohypha lignicola*).

Key to the species of *Xylohyphopsis*

1. Conidia dark brown, thick-walled, verrucose........................ *X. lignicola*
1. Conidia pale to mid brown, smooth..2
2. Conidia 0–1-septate, unicellular conidia 2–5 × 1–3 µm ....*X. aquatica*
2. Conidia 0–4-septate, unicellular conidia 6.5–8 × 5–6.5 µm ....*X. curta*

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